

Detailed Action

Hierarchical scheduling

Response to Arguments/Remarks

1. Claims 1, 3 – 10, and 12 – 21 are pending in this application.
2. Examiner withdraws the obvious double patenting rejection in view of Applicant's terminal disclaimer.
3. After re-opening prosecution and subsequent search and consideration, Examiner finds that claims 1, is rejected under 35 USC 102 and 3 – 6, are rejected under 35 USC § 103 for reason presented in this Office Action.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Pei (US006272109B)
2. Regarding Claim 1, Pei discloses a method (see FIG. 1A-B, 2-4, data communication system UNI 10 processing the method) comprising: selecting a first winning entry (see FIG. 5, identify/select a first

content/entry) from one of a plurality of main calendars (see FIG. 5, from lists in the schedule table) during a time unit (see FIG. 5, during a time), the first winning entry indicating a first pipe (see FIG. 5, identify/selected a first VPC) to be serviced during the time unit (see FIG. 5, a first content/entry to be serviced identifies a first VPOC to be serviced during a time; see FIG. 1A, Method S 1-\$3; see col. 5, line 14-30; see col. 10, line 64 to col. 11, line 16, 45-60; see col. 12, line 30-40); determining that no pipe flow corresponding to the winning first pipe currently needs to be serviced during the time unit (see FIG. 1A, \$3, \$5, S11; when there is no cell ready to send for HP VCC (e.g. CBR/VBR) associated with this VPC during the transmit time; see col. 5, line 33-34, see col. 6, line 7-11; see col. 11, line 13-16); selecting a second winning entry (see FIG. 5, identify/select a second entry/content to be serviced) from the plurality of main calendars during the time unit (see FIG. 5, from lists in the schedule table during a time), the second winning entry indicating a second pipe (see FIG. 5, identify/selected a second VPC) or autonomous flow (see FIG. 5, identify/selected separate/independent/autonomous VCC associated with a first VPC) to be serviced during the time unit (see FIG. 5, a second admission/entry identifies a second VPC or separate/independent/autonomous VCC to be serviced during a time; see FIG. 1A-B, Method \$5-\$9, S 11, S 13; when there is no cell ready to send in first VCC (e.g. CBR), the opportunity is passed to high/low priority second VPC, or low priority separate/independent/autonomous VCC of a first VPC; see col. 5, line 30 to col. 6, line 25; see col. 11, line 5-25); and servicing the autonomous flow or pipe flow corresponding to the second winning entry during the time unit (see FIG. 1B, S11, S13, S16; see FIG. 5; servicing high/low priority second VPC, or low priority separate/independent/autonomous VCC of a first VPC; see col. 6, line 6-55; see col. 11, line 5 to col. 12, line 65). Regarding Claim 2, Pei discloses selecting the first winning entry from a highest priority calendar that indicates an entry that needs to be serviced (see FIG. 1A-B, 5, \$3-\$4, \$7, S11, S12, selecting/identifying a first admission/entry to serviced from the HP VPCs that indicates that VCC entry that requires priority serving (e.g. CBR); see col. 5, line 14-30; see col. 10, line 64 to col. 11, line 16, 45-60; see col. 12, line 30-40). Regarding Claim 3, Pei

discloses the first winning entry includes a first entry of a chain (see FIG. 5, VP1, VC 1 is the first entry of table/chain to be serviced), the chain includes a plurality of pipe entries (see FIG. 5, VP0-VP3) scheduled to be serviced during the time unit (see FIG. 5, Table/chain includes VP0-VP3 scheduled to be serviced during the time).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3– 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei (US006272109B) in view of Hassan-Ali et al (U.S. Patent Application Publication 2004/0081167), hereafter Hassan-Ali in view of Eberle (U.S. Patent 7020161)

6. Regarding claim 3, Pei does not disclose, but Hassan-Ali teaches of selecting a winning pipe from the one or more pipes from which to transmit data based upon one or more quality of service parameters corresponding to the winning pipe includes writing data identifying a pipe to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the pipe and scanning the group of memory addresses to find data identifying a pipe. (7: [0061] read queue manager 812 provides the FIDs stored in a connection memory 814 to a subport scheduler 822 which performs hierarchical scheduling, detailed below, so as to manage traffic shaping and flow routing to elect most eligible connections to send the cells across the fabric.) .

7. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Pei with the teachings of Hassan-Ali.

8. One would have been motivated to modify Pei to select a winning pipe from the one or more pipes from which to transmit data based upon one or more quality of service parameters corresponding to the winning pipe includes writing data identifying a pipe to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the pipe and scanning the group of memory addresses to find data identifying a pipe in order to efficiently prioritize the flows.

9. In consideration of claims 4, Pei does not disclose but Hassan-Ali teaches of rewriting data identifying the winning pipe to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the winning pipe. (7: [0061] read A scheduler RAM 823 inserts FIDs i.e. winning pipe in the subport scheduler's priority queues i.e. memory address, based on such parametrics as the cell's theoretical arrival time (TAT) i.e. quality of service parameter).

10. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Pei with the teachings of Hassan-Ali.

11. One would have been motivated to modify Pei to rewriting data identifying the winning pipe to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the winning pipe in order to efficiently prioritize the flows.

12. In consideration of claims 5 – 6, Pei does not disclose, but Hassan-Ali teaches of writing data identifying a pipe flow to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the pipe flow; scanning the group of memory addresses to find data identifying a pipe flow; writing the identified pipe flow in a queue corresponding to the winning pipe based upon one or more quality of service parameters corresponding to the selected pipe flow; and selecting the identified pipe flow from the queue corresponding to the winning pipe. (7: [0061] read queue manager 812 provides the FIDs stored in a connection memory 814 to a subport scheduler 822 which performs hierarchical scheduling, detailed below, so as to manage traffic shaping and flow routing to elect most eligible connections to send the cells across the fabric. 7: [0061] read A scheduler RAM 823

inserts FIDs i.e. winning pipe in the subport scheduler's priority queues i.e. memory address, based on such parametrics as the cell's theoretical arrival time (TAT) i.e. quality of service parameter).

13. It would have been obvious at the time the invention was made by a person of to having ordinary skill in the art to modify the teachings of Pei with the teachings of Hassan-Ali.

14. One would have been motivated to modify Pei to of writing data identifying a pipe flow to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the pipe flow; scanning the group of memory addresses to find data identifying a pipe flow; writing the identified pipe flow in a queue corresponding to the winning pipe based upon one or more quality of service parameters corresponding to the selected pipe flow; and selecting the identified pipe flow from the queue corresponding to the winning pipin order to efficiently prioritize the flows.

Allowance

3. Examiner finds in view of amendments made above, that claims 7 – 10 and 12 – 21 are allowable

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY BARON whose telephone number is (571)270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained

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from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./
Examiner, Art Unit 2416

HB

/Kevin C. Harper/

Primary Examiner, Art Unit 2462